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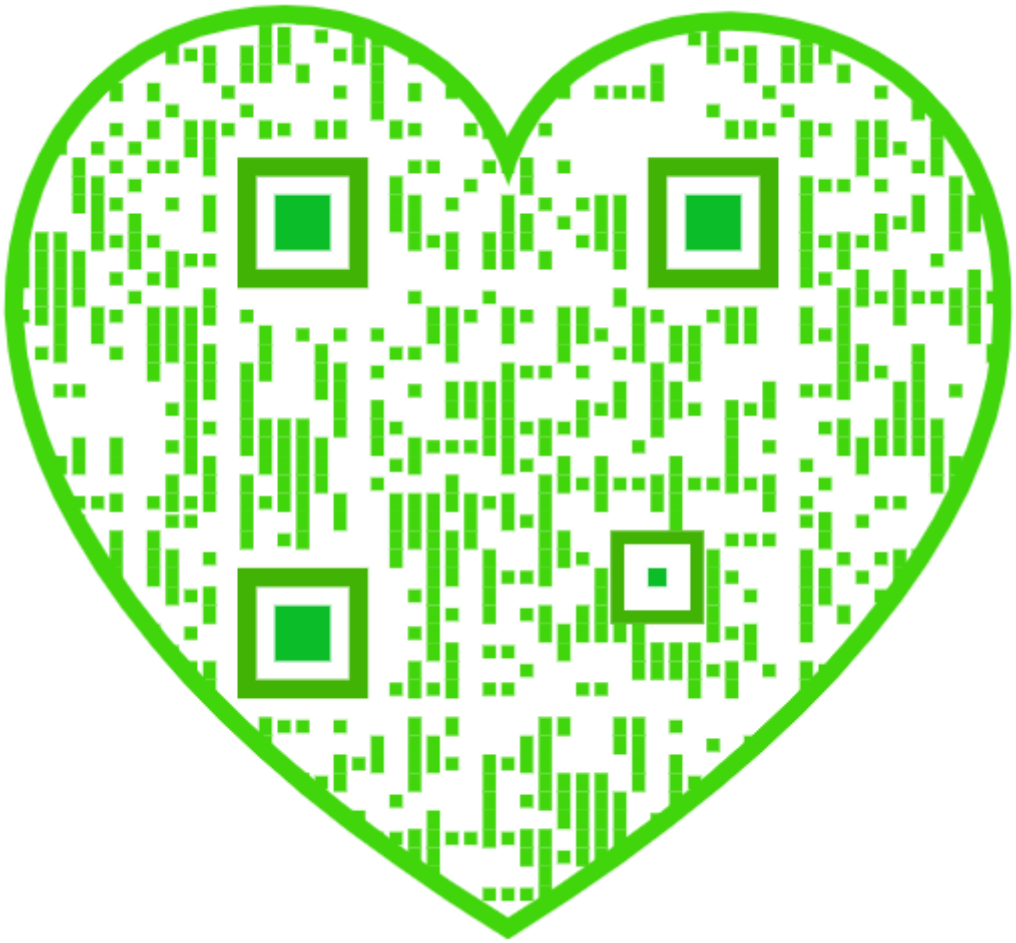
HISTORY OF INK



THE
ART
OF
INK
VOX DICTA PERIT, LITERA SCRIPTA MANET.
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THE

HISTORY

OF

INK

INCLUDING ITS

ETYMOLOGY, CHEMISTRY,

AND

BIBLIOGRAPHY.

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The History of Ink.

INK is history, in the common acceptation of the word; for, what is generally denominated history — is ink diffused on paper in certain definite lines. Yet ink has no history written or composed hitherto. In view of this deficiency—which betrays a singular negligence (on the part of historians and all literary men) and a thoughtless ingratitude to this indispensable means of accomplishing and preserving their work — we propose to supply the desideratum, by furnishing, on these little pages, what is indicated by the above title, in the fullest sense and widest scope of the term, including its etymology, its chemistry, and all that can be suggested and justified by the title, or fairly demanded under it, or claimed from it.

The great common error of general historians, ancient and modern, (with a very few exceptions among the moderns,) has been, that they have given to the world little else than narrations and descriptions of wars and treaties, of governmental changes and political events, omitting to record the often far more important facts in the history of literature, science, and the arts of utility, by which the progress of civilization and the development of the human race in its higher capacities have been effected or aided. The great "Instaurator of the Sciences" was the first to call attention to these omissions and deficiencies in all previous histories, and to indicate the duty of historians to avoid these errors,—setting a good example in that respect, in the specimen, or model work, which he produced as a pattern,—his history of the reign of Henry the Seventh. Since his time, many special histories of inventions and of the arts of utility have been written; and the numerous cyclopaedists have largely contributed to this object; still, however, leaving many vacancies to be filled in this department of human knowledge, of which the one before us can not be considered the least worthy of the labor needful for its investigation.

DEFINITION.

The word INK *has been variously defined by lexicographers, cyclopaedists and chemists; but the following terms may be taken as fully expressing the common qualities and essential specific characteristics of all substances included under the name.*

*Ink is a colored liquid employed in making lines, characters or figures on surfaces capable of retaining the marks so made. The Encyclopaedia Britannica, (vol. xii. p. 382, 1856,) gives the following definition: "*INK.*—The term ink is usually restricted to the fluid employed in writing with a pen. Other kinds of ink are indicated by a second word, such as red ink, Indian ink, marking ink, sympathetic ink, printers' ink, etc. Common ink is, however, sometimes distinguished as writing ink."*

As to COLOR,*—black is and has always been preferred in ordinary uses. For ornamental purposes and for occasionally useful distinctions, various other tints have been and are adopted—as blue, red, green, purple, violet, yellow—and so on, according to the fancy of the maker, or purchaser, or consumer.*

The substance employed to receive and preserve the marks thus made is now

almost universally Paper. Parchment is still used in many legal documents and writings of form and ceremony. Cotton, linen and silk, when woven into fabrics for garments and like uses, are also subjected to marks of ink for the purpose of identifying property. So are wooden and leathern surfaces in similar conditions. It is also employed in writing on stone, in the quite modern art of lithography.

Though its great original and continual employment is in writing, it must be remembered that it is also largely used in the delineation of objects by artists. Ink and paint are mutually convertible to each others uses, but are yet so distinct in character and objects, that no one regards the words as synonymous, and no precise definition is needed to teach the distinction between them. As, for instance, in pen-and-ink drawings and sketches, the ink serves the purpose of paint. So likewise in the letters on sign-boards, &c. paint may be considered as a substitute for ink. The artist who traces his name on the canvas in a corner of his painting, employs paint in a similar manner. Printing-ink is used as black paint. In the best red inks, carmine (a paint in water-colors) is the essential ingredient. Indian Ink is used here only as paint,—in China, as ink.

ETYMOLOGY.

The derivation of the English word "INK," and of its representatives in various modern languages, has caused much perplexity to philologists, and has been the subject of many erroneous conjectures. We suffix the names by which it is known in those nations who have most employed it:

English,	*Ink.*
Low-Dutch, Neder-Duytsch, Hollandisch,	*Inkt*
German or Deutsch,	*Dinte and Tinte.*
Old German,	*Anker, Tincta, Tinta and Dinde.*
Danish, Norwegian, Norse, Icelandic,	*Blaek, (India Ink, Tusch)*
Swedish,	*Blaeck, (India Ink, Tusk)*
French,	*Encre.*
Old French,	*Enque.*
Italian,	*Inchiostro.*
Spanish,	*Tinta.*
Portuguese,	*Tinta.*
Illyrian,	*Ingvas.*
Polish,	*Incaust.*
Basque,	*Coransia.*
Latin,	*Atramentum.*
Mediæval Latin,	*Encaustum.*
Greek,	*Melan.*
Hebrew,	*D'yo.*
Chaldee,	*N'kaso.*
Arabic,	*Nikson, Anghas.*
Persian,	*S'y'ah'o.*
Hindustani, and Hindui,	*S'yaho, Rosh'na, kali, shira, mas, murakkat, kalik, midad.*
Sanscrit,	*Kali, (Black.)*
Armenian,	*Syuaghin.*

We might amuse ourselves by extending this tabular list indefinitely. Enough, however, has been already shown to illustrate a few remarkable facts which we wish to present that are connected with the etymology of our subject; but we present a page of Lithographic illustrations which will enable any "curious reader" to trace the word further.

No dictionary of the English language gives us any help or light about the matter. Webster suggests "inchiostro," (the Italian word,) as the source of derivation; and all the Italian lexicographers agree that inchiostro is from the later Latin ENCAUSTUM, *which is in fact Greek,* Εγκαυστον, *(Encauston,) "burned-in or corroded." Encaustum became corrupted into "enchaustrum," from which the transition to "inchiostro," is by the regular form of derivation from the Latin to the Italian,—the L before a vowel giving place to a short I—as "piano" from* PLANUS. *(The* CH, *in Italian is always sounded hard, like the English K.)*

Leaving the French word encre, as on the middle ground between different etymologies, and affording no light either way,—we find the Spanish and Portugese "tinta," and the German (a language widely remote from those of the Iberian peninsula in origin and affinities) "dinte,

tinte and tincta," forcibly reminding us of the Latin participle TINCTUS, TINCTA, TINCTUM, *from the verb* TINGO, *which is represented in English by* TINGE, *and other derivatives, such as "tincture," &c. We cannot refuse to recognize the Holland-Dutch "Inkt" as from the same root to which we have thus traced the corresponding word in a language which we may call its "cousin-German;" and it is hard to exclude the Old French "Enque" and modern "Encre" from this circle of relationship.*

Then, we are somewhat impressed by the discovery of the word Ingvas in the Illyrian, a language of the Slavonic (or more properly Slovenic) stock, like the Polish,—and, like that, enriched by words derived from the Latin. The Polish, however, presents us with the actual Graeco-Latin Encaustrum.

Still more remote from the English and Italian, we find among the Orientals of the Shemitish race, ANGHAS *and* NIKSON *in the Arabic, and* N'KASHO *in the Chaldee, with a manifest resemblance in sound, and with an actual possession of the same elements and radical letters, N. K. Yet we do not think of suggesting that these words had a common origin with the corresponding ones in European Languages,*

though so nearly coincident in sound. The case is simply one of accidental resemblance, a remarkable coincidence,—(because occurring at three different and remote points,) but yet a coincidence not wholly unparalelled.

The probability is that the English word, like the Dutch, German, Spanish, &c., came from the Latin TINCTUM, *but it may be left "an open question;" for if we had not these instances to direct the formation of our opinions, we should have no hesitation in acknowledging the Italian Inchiostro as the true* ETYMON; *just as, if we had neither of these in view, we might suspect the origin of our word to be in the Oriental* ANGHAS *or* NIKSON.

The Ethiopic KALAMA *at first sight appears to be related to the Hindustani* KALI; *but the latter is merely the word in all the languages of Hindustan for black,—while the former is but a modification of the Greek and Latin* CALAMUS, *a reed or pen,—the instrument (naturally enough) giving its name to the liquid which was essential to its use.*

The word ENCAUSTUM *connects, in a very interesting and instructive manner, both with the history and the chemistry or manufacture of our modern inks, and is a satisfactory demonstration of the utility of such*

etymological researches as those in which we have been here indulging.

The one great distinction between the ancient and the modern inks is this: The old inks were PAINTS; the writing inks now in use by all nations (excepting those of Southern Asia) are DYES. That is the whole difference.

It would be well to give a definition or limitation of the words "Ancient" and "Modern." No one has done it hitherto. We will not attempt to fix the point precisely, but may reasonably say that the period intervening between September, A.D. 410, (when Rome was taken by ALARIC and his Visigoths) and December 25, A. D. 800, (when Karl the Great, otherwise called Charlemagne, was crowned in Rome by Pope Leo with the title of Emperor of the Holy Roman Empire) contains the interval between antiquity and modern times.

The introduction of Paper as the common material upon which significant characters were to be marked, must have had a great agency in producing a change in the composition of the liquid employed in making the marks.

PARCHMENT was the substance in use, among all the European nations, as the substratum of manuscript, from the time when the Egyptian papyrus went out of fashion.

Both the parchment and the papyrus were written upon, by Romans, Greeks and Hebrews, with pens made of small reeds, dipped in a fluid composed of carbon, (not dissolved, but) held in a state of suspension by an oil or a solution of gum.

The letters were originally painted on the surface of the papyrus, parchment, board, or other material so employed—the ink not being imbibed or absorbed by the substance on which it was shed, but remaining on the surface, capable of being removed by washing, scraping, rubbing, or any similar process. The surface thus cleansed was then in a state to receive a new inscription; so that erasions and inscriptions might be indefinitely repeated upon it, as upon a modern sign-board.

Modern Ink, on the contrary, leaves its marks upon paper, parchment, &c., by penetrating the material to such a depth that it cannot be erased (mechanically) without the removal or destruction of the surface which it has tinged. Chemical agency, as of various acids, chlorine and its compounds, is generally employed, therefore, to discharge the color from modern writing-ink-marks. Carbon, in all its common forms, (charcoal, bituminous coal, anthracite, jet, plumbago, lignite, ivory-black, lamp-black

and soot,) is wholly unalterable in color by any of these chemical means.

Printing Ink (which is composed of carbon suspended in a drying oil) is, in essential characteristics, identical with the writing-inks of the ancient Romans and Greeks. It is impressed upon the surface of paper, (that which is unsized or bibulous being commonly preferred,) and is retained unchanged by the action of moisture, on account of the insolubility of the carbon and the repulsion between oil and water. These two forms of ink are therefore the exact opposites of each other, in the qualities on which their use and permanence depend. The most important peculiarity of the modern writing-ink, as contrasted with the ancient, naturally suggested the two names which it bore in the Latin and Greek of the middle ages, or (to speak more definitely,) the time of its invention and first employment. It was a Tincta, a DYE, *or* STAIN, *which tinged and tinctured the material on which it was placed, entering among its fibres as coloring fluids do into cloth in the ordinary processes of manufacture. It penetrated the substance of the paper (as caustics or powerful chemical solvents and corrosives act on the organic fibre): it bit in, or burned in,—and was therefore well named* ENCAUSTON *and Incaustum.*

CHEMISTRY or COMPOSITION of INK.

We do not propose to furnish recipes, prescriptions, directions or instructions for the manufacture of this article. No mere statement in words can enable any one to arrive at perfection, or excellence, or practical success in the production of this article, or any articles whatsoever. A skill and carefulness, which can be acquired only by long and laborious experience, are indispensable to the management of the various processes. Time is an essential element of success in this peculiar art; and that makes absolutely requisite also, two other conditions,—patience and capital. We shall therefore be brief on this point,—referring those who wish for minute details, to the cyclopaedias, dictionaries of the arts and sciences, and the larger works on practical chemistry. The following we venture to present as the most correct account of this subject, derived from the latest scientific and practical authorities.

The composition of ink varies according to its colors, and the purposes to which it is to be applied.

Common black writing-ink is the tannate of the sesquoxyd of iron mixed with a smaller quantity of the gallate of the

sesquoxyd of iron. When in the liquid form, it is generally the tannate and gallate of the protoxyd; but after being long kept, (or put on the paper and drying there,) it absorbs more oxygen from the atmosphere; and thus the saline compounds become the per-tannate and per-gallate, which are blacker than the tannate and gallate of the protoxyd. It is thus and therefore that good modern ink is known by the simple test-quality of darkening by age. On the other hand, when writing becomes yellow, pale or indistinct by age, it is from the decay of the imperfectly combined vegetable astringent,—the marks on the paper or parchment being then little more than the stain of the per-oxyd (that is the sesquoxyd) of iron. If the written surface be then carefully washed or even moistened with the infusion of nut-galls, it will be rendered blacker, and if before indistinct will become legible. This may sometimes be better accomplished by first applying a weak solution of oxalic acid or very dilute muriatic (hydro-chloric) acid, and then delicately laying on the infusion of galls.

When the writing paper has been made of inferior rags, bleached with chlorine, the best ink used upon it is liable to become discolored.

Nut-galls or gall-nuts (*Gallæ-tinctoriæ*)

are excrescences growing upon the leaves or twigs of oak trees, (especially the Quercus infectoria,) caused by the puncture of an insect (the Cynips gallæ-tinctoriæ) which deposits its eggs in the perforations thus made. The Quercus infectoria is most abundant in Persia, Mesopotamia, Syria and Asia Minor, from which countries the galls are brought in large quantities to the manufactories of Europe and America. The best are called "ALEPPO galls," from the name of the Syrian city which is the chief original market for them. Those from Smyrna are also highly esteemed.

They contain the vegetable astringent principle called tannin in greater abundance than any other known substance. This is chemically resolved into the acids known as the tannic and gallic. All the woods and barks employed in the manufacture of leather by the tanning of hides contain this astringent matter in various degrees. The oak and the hemlock, for instance, are in extensive and familiar use for this purpose in the United States. The blackness of ink, as has been already indicated, is derived from the combination of these two acids with oxydized iron in saline compounds which are insoluble in water, and are therefore precipitated or deposited at the bottom of the fluid, unless held mechanically

suspended in it, by gum, sugar or some similar substance which gives the quality of viscidity to its solutions.

The following will serve as a good formula for making common ink, and will be enough to give an idea of the ordinary and general mode of its composition:—"Take of Aleppo galls finely bruised, six ounces,—sulphate of iron, four ounces,—gum Arabic, four ounces,—water, six pints. Boil the galls in the water for about two hours, occasionally adding water to supply the loss from evaporation; then add the other ingredients; and keep the whole for two months in a wooden or glass vessel, which is to be shaken at intervals. Then strain the ink into glass bottles, adding a few drops of creosote to prevent mouldiness."

Besides its property of viscidity, the gum possesses the power of preventing the ink from being too fluid: and it also serves to protect the vegetable matter from decomposition. The great desideratum or requisite is that the ink should flow with perfect freedom from the pen, to allow rapid writing, and that it should adhere to the paper, or "bite into it," so as not to be effaceable by washing or sponging. The great defect to be avoided and prevented is the want of durability. The writing ink

of the ancients was characterized by great permanency, being composed of finely pulverized carbon mixed with a mucilaginous or adhesive liquid. INDIA or CHINA INK is of this composition: it is formed of lamp-black and size or fine animal glue, with the incidental addition of perfumes. It is used in China with a brush, both for writing and painting on Chinese paper; and it is employed in other countries for making drawings in black and white,—the different depths of shade being produced by varying the degree of dilution in water.

Inks of other colors than black were anciently used only for purposes of ornamental and decorative writing. In later and present times, red and blue inks have been extensively employed in ruling account-books and other paper for like uses. Blue ink, within ten or more years past, has been, with many, a preferred fluid for common writing.

Blue ink, when properly made, flows with great ease and rapidity from the pen, dries almost instantly on the paper, and has been supposed or expected to be quite durable, and unchangeable in color, under ordinary vicissitudes. Yet, experience has demonstrated the contrary,—though various and well-contrived chemical combinations have been attempted for the purpose. Blue inks that change to black some time after writing

are very popular. On well-made and high-priced paper, and with gold pens, such inks, if prepared by good chemists, may ultimately prove worthy of the high esteem in which they are held; but their absolute and unchangeable durability is yet to be tested by experience, before they can be safely employed for writings of permanent value, and relied on for use in making records designed for preservation and reference during a long course of years.

There is a compound of bichromate of potash and extract of logwood, which forms a very cheap and convenient writing fluid. Dr. Ure pronounces it "a vile dye." Yet it may have its utilities, in localities remote from the centres of civilization and commerce,—as in the new settlements in western America, in Australia, &c., and for travelers in Africa, in the Arctic and other barbarous or uninhabited regions. The following is the best formula which can be given for this compound; and we present it on the highest chemical authority:—"Take Bichromate of potash, 1-4 oz.—Extract of logwood 1 oz.—Boiling water, 1 gallon.

We have taken the trouble to give this prescription or formula, because some quacks have been peddling it all over the country, at all sorts of prices, varying (according to the credulity and liberality of purchasers)

from 50 cents to $250. We give it for just what it is worth; and that is—exactly what this book costs the reader.

BIBLIOGRAPHY.

The longest and most valuable passage which we find in the writings of any English author, who has alluded to our subject, is the following, from "The Origin and Progress of Writing, by Thomas Astle, F. R. S., F. A. S. &c., pp. 209 to 212, 2d edition, London, 1803.

"Of Inks. Ink has not only been useful in all ages, but still continues absolutely necessary to the preservation and improvement of every art and science, and for conducting the ordinary transactions of life.

"Daily experience shows that the most common objects generally prove most useful and beneficial to mankind. The constant occasion we have for Ink evinces its convenience and utility. From the important benefits arising to society from its use, and the injuries individuals may suffer from the frauds of designing men in the abuse of this necessary article, it is to be wished that the legislature would frame some regulation to promote its improvement, and prevent knavery and avarice from making it instrumental to the accomplishment of any base purpose.

"Simple as the composition of Ink may be thought, and really is—it is a fact well known, that we have at present none equal in beauty and color to that used by the ancients; as will appear by an inspection of many of the manuscripts above quoted, especially those written in England in the times of the Saxons. What occasions so great a disparity? Does it arise from our ignorance, or from our want of materials? FROM NEITHER, but from the negligence of the present race; as very little attention would soon demonstrate that we want neither skill nor ingredients to make Ink as good now as at any former period.

"It is an object of the utmost importance that the Records of Parliament, the Decisions and Adjudications of the Courts of Justice, Conveyances from man to man, Wills, Testaments, and other Instruments which affect property, should be written with Ink of such durable quality as may best resist the destructive powers of time and the elements. The necessity of paying greater attention to this matter may be readily seen by comparing the Rolls and Records that have been written from the fifteenth century to the end of the seventeenth, with the writings we have remaining of various ages from the fifth to the twelfth century. Notwithstanding the superior

antiquity of the latter, they are in excellent preservation; but we frequently find the former, though of more modern date, so much defaced that they are scarcely legible.

"Inks are of various sorts, as—encaustic or varnish, Indian ink, gold and silver, purple, black, red, green, and various other colors. There were also secret and sympathetic Inks.

"The Ink used by the ancients had nothing in common with ours, but the color and gum. Gall-nuts, copperas and gum make up the composition of our Ink; whereas soot, or ivory-black, was the chief ingredient in that of the ancients; so that very old charters might be suspected, if written with Ink entirely similar to what we use; but the most acute and delicate discernment is necessary in this matter; for some of the [black] Inks formerly used were liable to fade and decay, and are found to have turned red, yellow or pale. Those imperfections are however rare in manuscripts prior to the tenth century.

"There is a method of reviving the writing; but this expedient should not be hazarded, lest a suspicion of deceit may arise, and the support depended on [be] lost.

"GOLDEN Ink was used by various nations, as may be seen in several libraries, and in the archives of churches. SILVER

Ink was also common in most countries. Red Ink, made of vermilion, cinnabar, or purple, is very frequently found in manuscripts; but none are found written entirely with ink of that color. The capital letters, in some, are made with a kind of varnish, which seems to be composed of vermilion and gum. Green Ink was rarely used in charters, but often in Latin manuscripts, especially in those of the latter ages. The guardians of the Greek emperors [or rather the Regents of the Empire] made use of it in their signatures, till the latter [the monarchs during minority] became of age. Blue or Yellow Ink was seldom used but in manuscripts. [!!!] The yellow has not been in use, as far as we can learn, for six hundred years.

"Metallic and other characters were sometimes burnished. Wax was used as a varnish by the Latins and Greeks, but much more by the latter, with whom it continued a long time. This covering or varnish was very frequent in the ninth century.

"Color. The color of Ink is of no great assistance in authenticating manuscripts and charters. There is in my library a long roll of parchments, at the head of which is a letter that was carried over the greatest part of England by two devout monks,

requesting prayers for Lucia de Vére, Countess of Oxford, a pious lady, who died in 1199,—who had formed the house [or convent] of Flenningham in Essex, and done many other acts of piety. This roll consists of many membranes or skins of parchment sewed together,—all of which, except the first, contain certificates from the different religious houses that the two monks had visited them, and that they had ordered prayers to be offered up for the Countess, and had entered her name on their bead-rolls. It is observable that time hath had very different effects on the various inks with which these certificates were written. Some are as fresh and black as if written yesterday; others are changed brown; and some are of a yellow hue. It may naturally be supposed that there is a great variety of handwritings upon this; but the fact is otherwise, for they may be reduced to three.

"It may be said in general, that BLACK *ink of the seventh, eighth, ninth and tenth centuries, at least among the Anglo-Saxons, preserves its original blackness [thereby meaning that its "form had not lost all its original brightness"] much better than that of succeeding ages,—not even excepting the sixteenth and seventeenth, in which it was frequently very bad. Pale ink very rarely*

occurs before the four last centuries.

"Peter Ganipharius, Professor of Medicine at Venice, wrote a curious book concerning Ink, which is now scarce, though there is an edition of it printed in London, in 1660, quarto. The title is—De Atramentis cujuscunque generis opus sanè novum. Hactenus à nemine promulgatum. [A WORK ACTUALLY NEW, CONCERNING INKS OF EVERY KIND WHATSOEVER,—HITHERTO PUBLISHED BY NO ONE.] This work is divided into six parts. The first treats generally of Inks made from PYRITES, [sulphurets of iron and copper,] stones and metals. The second treats more particularly of Inks made from metals and CALXES. [Better say calces, or, to speak chemically, crystallized salts deprived of their "water of crystallization," or carbonic acid, by the action of heat.]—The third treats of Ink made from soots and vitriols.—The fourth treats of the different kinds of Inks used by the librarii or book-writers, [professional scribes or copyists of manuscripts before the invention of the art of Printing,] as well as by printers and engravers, and of staining (or writing upon) marble, stucco or scagliola, and of ENCAUSTIC modes of writing; as also of liquids for painting or coloring of leather, cloths made of linen or wool, and for restoring inks that have been defaced by time, as

likewise many methods of effacing writing —restoring decayed paper—and of various modes of secret writing.—The fifth part treats of Inks for writing, made in different countries, of various materials and colors,—as from gums, woods, the juice of plants, &c., and also of different kinds of varnishes.—The sixth part treats of the various operations of extracting vitriol, and of its chemical uses.

"This work abounds with a great variety of philosophical, chemical and historical knowledge, and will give great entertainment to those who wish for information on this subject.

"Many curious particulars concerning Ink will be found in "Weckerus de Secretis." (Printed at Basle, in 1612, octavo.)—This gentleman also gives receipts for making Inks of the color of Gold and Silver, composed as well with those materials as without them,—also, directions for making a variety of Inks for secret writing, and for defacing of [effacing] Inks. There are many marvelous particulars in this last work, which will not easily gain credit with the judicious part of mankind."

We have chosen to give Mr. Astle's paragraphs on this subject, entire, "pure and simple," (with no corrections or alterations, except as to a few particulars in

spelling, punctuation, &c.,) including some unnecessary formal verbiage,—instead of embodying his facts and observations in our own language. We shall do likewise with other authors whose books we use in this work, as the most effectual way of giving each of them due credit for their several discoveries and statements, and, at the same time, securing our own just claims to what we herein present as of our own discovery or production. But we will give no credit to a mere compiler or plagiarist.

Mr. Astle was keeper of the ancient Records of the English Government in the Tower of London, and thus enjoyed extraordinary facilities for ascertaining such facts, and making such observations as he furnishes in his very useful, interesting, and elegantly illustrated book. As to what he says (in his seventh paragraph) about the inexpediency of "hazarding" any effort to revive writing which has faded or become illegible, from fear of "a suspicion of deceit,"—the caution must of course be limited to cases where the words proposed to be restored to legibility have reference to some question of disputed title, or other matter in litigation or controversy. Mr. Astle would not have hesitated (any more than Angelo Mai) to use any possible process for the restoration of a palimpsest manu-

script of a long-lost work of Cicero or Livy, or of any document worth the labor and the time requisite to revive the letters or read them. Mr. Astle's slight lapse of pen or mind in stating (eighth paragraph) that "Blue or yellow ink was seldom used except in manuscripts," reminds us of Noah Webster's reason, given in the first edition of his quarto dictionary, for the use of the word "Iland" instead of "Island," viz., that the latter spelling was "found only in books." Perhaps the venerable Mr. Astle would have been as much astonished to learn that he himself had always written manuscript, whenever he put pen to paper, as the Bourgeois Gentilhomme, in Moliere's comedy, was to learn that he "had been speaking prose all his life."

A comparatively recent author gives the following as the sum and substance of his knowledge on this division of the subject of our book.

WRITING-INKS.

Dark-colored liquids were used to stain letters previously engraved on some hard substance, long before they were made to flow in the calamus or pen for forming them on a smooth surface; and the Chinese made their "Indian Ink" in the same

manner as now, 1120 years before the Christian Era; but, only used it, at that time, to blacken incised characters.[1] *Ink was termed by the ancient Latin authors atramentum scriborium,*[2] *or librarium, to distinguish it from atramentum sutorium or calchantum. It was made of the soot of resin, or pounded charcoal, and other substances, mixed with gum, and not, like ours, of vitriol, gall-nuts, alum, &c. The earliest positive mention of ink is perhaps the passage in Jeremiah, in the Vulgate, "Ego scribebam in volumine, atramento."*[3]

[1] *Here we might add, without fear of contradiction, that Ink is still extensively used to "blacken characters," without regard to the depth of the incision.* [2] *The specimen of the English language which we quote, is not faultless; and the* Latin *is execrable. There is no such word as scriborium in any language, ancient or modern. The Romans called writing-ink atramentum scriptorum.* [3] *This is a very paltry piece of pedantry. Why could not this author (who shows that he does not understand* Latin,) *give us the text in English? The passage is in Jeremiah, chap.* XXXVI, *verse* 18: *"I wrote them with Ink in a book." The only other references in the Bible to Ink, are the following:* 2 *Corinthians,* III, 3: *"written not with Ink, but the spirit."* 2

John, XII: "*I would write with paper and Ink.*" 3 *John*, XIII: "*I had many things to write, but I will not with Ink.*" *Ezekiel*, IX, 2: "*with a writer's ink-horn by his side.*"

Gold liquids, and also silver, purple, red, green, and blue inks, were eventually used in manuscripts after the fourth century,—red and gold having been employed much earlier. St. Jerome speaks of rich decorations, which must have been executed with colored inks; but, before his time, Ovid alludes not only to the purple charta, made use of for fine books, which were also tinged with an oil drawn from cedar-wood, to preserve them, but, also to titles written in red ink, which were the first kind of illuminations. The passage occurs in his first elegy, "Ad Librum:"

> "*Nec te purpureo velent vaccinia succo;*
> *Non est conveniens luctibus ille color.*
> *Nec titulus minio, nec cedro charta notetur.*
> *Candida nec nigra cornua fronte geras.*"

The last line proving, as Gasley observes, that Ovid wrote upon a roll.

This author, not having been kind enough to translate Ovid for us, we are compelled to do it for him. This "Elegy" of the poet is addressed "To his Book;" and the following words contain the meaning of the four lines above quoted:

Nor shall huckleberries stain [*literally*, VEIL] *thee with purple juice:*
That color is not becoming to lamentations.
Nor shall title (or "head-letter") be marked with vermilion, or
paper with cedar,
Thou shalt carry neither white nor black horns on thy forehead
(or front, or frontispiece).

The word "huckleberries," we have rightly spelled here. The dictionaries generally are wrong in spelling the word "whortleberry" Huckleberry, or Hockleberry, is found in the kindred languages of Northern Europe.

Diplomas were seldom written in gold or colored inks; but some charters of the German Emperors are known, not only in gold, but on purple vellum; and Leukfeld mentions one of the year 912, ornamented also with figures; while several early English charters have gold initial letters, crosses, &c. The black ink that has kept its color best, in mediaeval manuscripts, is that used from the tenth to the thirteenth century. The signatures of the Eastern Emperors are frequently in red ink.

Colored inks were common in mediaeval manuscripts,—the red being most usual for titles, which has given rise to the term Rubric. The writers of books (that is, the copyists,) often appended their names to the end of the work, generally in ink of a different color from that of the body of the work, stating the time and place in which the work was executed.

To this may be added, with advantage, some instructive account of

WRITING INSTRUMENTS,

whose history is closely connected, to a great extent, with that of writing FLUIDS.

The Egyptian, and all other oriental and ancient scribes, who wrote upon stone, employed (of course) some instrument similar in character to the chisel of our modern tomb-stone cutters, or monument letterers. So with the Greeks and Romans, writing on surfaces of wax or wood, the instruments were the graphium, or glypheion, (the grawer,) and the stilus, or caelum, all of steel or iron. When the use of a dark-colored liquid or Ink was introduced, there arose a necessity for instruments of very different material, and great flexibility, in opposition to the unyielding rigidity of the tools previously employed. Then were invented the first implements properly called Pens, or really resembling what we so denominate and use. These were universally made of vegetable material, growing in the tubular form, of convenient size, as the calamus, arundo, juncus, and, in general terms, the smaller stems of various plants called "reeds" and "rushes" in English. We have already mentioned the

uniform employment of the hair-pencil, or brush, by the Chinese, from the most ancient time of their writing. The quill, or feather-pen, was introduced during the fourth century.

We have alluded to the palimpsest manuscripts. This is the term applied to parchments that have been twice written upon,—the first writing being effaced to make room for the second. During the period commonly called "the dark ages," the monks and other scribes, copyists or book-makers, were in the habit of effacing the letters from old manuscripts, in order to make a clean surface for a new writing. In this way was caused the deplorable destruction of an immense and an inestimably valuable amount of ancient literature, of Greek and Roman history, poetry, eloquence and philosophy, merely to make room for mass-books, and other works of stupid superstition and mis-directed devotion, or, of scholastic theology and philosophy, now long ago universally condemned and exploded. Within the past and present generation, however, the learned world has been delighted by the surprising recovery of some of these long-lost treasures, through the skilful and ingenious labors of the deservedly famous Cardinal Angelo Mai, and others, whose researches in the

libraries of Rome, Milan, Padua, Naples, Florence, and other cities, have resulted in the restoration of inestimably precious writings, thus partially obliterated or obscured.

Brande's Dictionary of Literature, Science, and Art, gives a brief summary of the same general facts in the article "Palimpsest."

The fullest and most elaborate exposition of the composition and manufacture of Ink which we have been able to find, however, is in the great French "Dictionaire des Arts et Manufactures," by an association of distinguished savans, in two volumes, imperial octavo, Paris, 1853, article, ENCRE.

But, of all articles and treatises on the subject, which we have examined, that in the English Penny Cyclopaedia has the merit of containing, if not the best and longest account, a very good and satisfactory one,—because it expresses all the essential facts in the fewest and best-chosen because perfectly intelligible words. As we do not attempt to furnish a text-book for ink-manufacturers, we do not transcribe in full, or translate, from these and other works of great value on this subject.

That modern inks do not resist the decomposing and destructive power of

chemical agents (whether acids, alkalies, saline bodies or elements,) as well as the ancient inks, is the result of a necessity existing in their very composition and invention, and even in the use for which they were designed, and to which they are applied. A dye (like modern ink) is the result of chemical action, and is therefore subject to chemical re-agents; yet, when well made, it is proof against mechanical action, such as washing, rubbing, and scraping; nor can it be removed from paper to which it is applied, without destroying that material, or rendering that part of it practically useless. But, on the other hand, the ancient inks, which resist all chemical processes, can be removed by mechanical action, such as has been named. If a new ink were compounded of the two, possessing the best properties of each, any writing executed with it could be effaced by the joint or successive action of mechanical and chemical applications.

It must be borne in mind that the ancient inks had one use for which writing ink is now never required; and that was in making books, or multiplying copies of manuscripts indefinitely for general reading, or publication. The invention and universal employment of the art of printing has wholly done away with that.

Of Indelible Inks, *or those used for marking fabrics of cotton, linen, &c., for the identification of ownership, it is not necessary to give any particular description. Their ordinary composition is very generally understood to be a solution of nitrate of silver, or some similar caustic, applied with a pen of proper material, to a portion of the surface of the cloth, which has been previously prepared by the absorption of a gummy or mucilaginous fluid dried upon it under pressure.*

Sympathetic Inks are fluids employed in coloring drawings made for parlor amusement, or the diversion of children and youth. As, for instance, a landscape drawn in ordinary colors with a wintry aspect, cloudy or somber sky, snow on the ground, and leafless trees, if properly touched with sympathetic inks, will, at any time, when brought near a fire, or otherwise subjected to a certain degree of warmth, change to the hues of summer, the sky becoming of a clear blue, the trees in full foliage, and the turf rich with grass, each with its appropriate shade of verdure, as also flowers of their various natural colors, &c., according to the fancy of the artist, the whole disappearing as the picture grows cold. The chloride, the nitrate, the acetate, and the sulphate of

cobalt, form sympathetic inks,—the first, blue, and (with the addition of nickel,) green; the second, red. Chloride of copper gives a gamboge yellow; bromide of copper, a fine rich brown.

Letters written with a solution of acetate of lead, are invisible until exposed to the action of sulphuretted hydrogen, which makes them distinct, with the lustrous greyish black of sulphuret of lead, the same substance which is called galena when it occurs as lead-ore. A weak infusion of galls or other vegetable astringent, will, if applied to paper in the form of letters, become legible when touched with any solution of iron. If written with a solution of ferro-cyanide of potash, letters will remain invisible until touched with a solution of sulphate of iron.

IMPORTANCE OF GOOD INK.

Astle speaks very impressively and justly on this point; and we contribute to this part of our subject by calling attention to facts almost daily occurring or brought to notice in this country, especially in the older cities and states, where town-records, parish-registers, and other documents of ancient date, and of high importance in

history, chronology, and genealogy, (as well as in regard to the title and inheritance of estates,) are found obscured and obliterated, causing losses, public and private, that need but to be mentioned to be properly estimated.

In the appendix will be found a facsimile of a sheet upon which various specimens of ink were thoroughly and fairly tested, which is a brief but emphatic demonstration of a difference of qualities by difference of results.

To show what can be done in the preservation of writing on material even frailer than such paper as we employ, we need but produce the specimen of Egyptian writing on papyrus, pronounced by Champollion to have been executed more than sixteen hundred (1600) years before the birth of Christ, yet still in preservation and legible, as may be seen by the representation we give of it.

This is undoubtedly as old as any specimen of phonetic characters or written letters (representing sounds, not ideas or objects,) extant, made by marking with a fluid upon any substance. There are inscriptions of letters upon stone, for which an earlier date of 4000 years B. C., is claimed with truth. But this is INK-*writing, absolutely 3500 years old!*

The Chinese assert that they had the art of writing at a period 2950 years before Christ; but they have no records or monuments of that date; and their characters even to the present time, are entire words, representing objects, ideas or things, not sounds. In the art of printing, they pretend to have preceded the European nations about 2400 years, dating their invention of it from the tenth century before Christ. But they have never advanced beyond the first form of the art—letters engraved on solid wooden blocks—the very method in use by Koster, and his associates, until the invention of moveable types by John Gansfleisch, otherwise named John Gutenberg or Guttemberg, in 1435. In both arts, writing and printing alike, the Chinese have remained stiff, solid and immovable at the first step, with the characteristic unchangeability of the yellow races of Eastern Asia, so opposite to the indefinitely progressive and self-improving energy of the nations whose progenitors proceeded west from the original source and centre of the earth's population. The same ink serves the Chinese both for writing and printing, as does the same kind of paper. This ink they invented about the end of the first century of the Christian era; before which time

they wrote on boards or bamboos. Having next proceeded to the use of silken cloth for these purposes, the preparation of paper from that material naturally followed. Their ink, being carbonaceous and oleaginous, is, of course, (like that of the Egyptians and all the other ancients,) unfading, and unalterable by chemical agencies, though capable of being effaced or obscured by watery applications or exposure.

As to their claim of having invented the art of printing, we shall have something to say hereafter.

The Aztecs (in Mexico, before the Spanish discovery and conquest,) extensively employed a picture-writing, as a means of recording events, during a period not exceeding two centuries before that epoch. They had the art of manufacturing materials as a basis of such writing, from the Agave or American aloe, and from cotton, in the form of a very fine cloth. They also used prepared skins for the same purpose, the best specimens of which are pronounced to be more beautiful than the finest vellum. Their manuscripts were sometimes done up in rolls or scrolls, and frequently on tablets, in the form of a folding-screen. Their inks appear to have been coloring matters in watery solutions.

The oldest Phoenician ink-writing of which any specimen has been preserved, dates no later than the second century before Christ, and may be much older. A fac-simile of a portion of it will be found among our illustrations, explained by notes referring to each by its number.

Greek manuscripts in ink (on papyrus), of the third century before Christ, are in existence. We give specimens of the oldest known,—one written in Egypt, 260 B. C., being an order from Dioscorides, an officer of the government of Ptolemy Philadelphus, to another named Dorion. The translation of the words is "Dioscorides to Dorion, greeting. Of the letter to Dorion the copy is subjoined." * * * We add other specimens, of the same and later periods.

Of Latin writing with ink, the earliest we can find is the palimpsest of Cicero's book, "De Republica," which had been partly effaced to make room for a copy of Augustin's commentary on the Psalms. It is believed by the learned that the original manuscript was executed at least as early as the second or third century of the Christian era. The restoration of this manuscript, and the discovery of this long-lost and earnestly sought classic gem, were the work of Cardinal Mai, as before men-

tioned. The original words are TETERRIMUS ET EX HAC VEL——, and are written in two columns on the page, while the later writing runs completely across the page.

Of the earliest writing executed in France, after that country received its name from those who conquered it, we give a specimen from the beginning of a charter of King Dagobert I, executed A. D. 628. The words are —QUOTIESCUMQUE PETITIONIBUS"—"However many times to petitions," &c. It is a confirmation of a partition of property between two heirs. The monogrammatic autograph of the Great Karl, (in modern times called Charlemagne,) we present also as an object of interest. A.D. 800.

The oldest specimen of writing in Great Britain which has been preserved to the nineteenth century, was a book believed to be not later than the year 600 of the Christian era. Astle has preserved an engraved specimen of it; but the priceless original has since been destroyed by fire in the British Museum. It was said to be a book of Augustin. A specimen still in existence, dates between the years 664 and 670. It is a charter of Selbi, King of the East Saxons, and is easily read:—"I, Selbi, King," &c. We subjoin a few words from the commencement of a charter

of William the Conqueror, whose reign commenced in England, A. D. 1066:—WILL: DEI GRATIA REX, &c., SCIATIS ME CONCESSISSE—"William, by the grace of God, King &c.: Know ye that I have granted—"

ISAAC D'ISRAELI, in his Curiosities of Literature, (vol. 2, page 180, of the Boston edition,) gives a treatise on the "Origin of the Materials of Writing." He commences it with these remarkable words: "It is curious to observe the various substitutes for paper before its discovery."

Now, of all "curiosities of literature," this little sentence is, in many respects, the most curious. He talks of substitutes for a thing not in existence, and not even a subject of imagination, conjecture, or conception. The name of D'Israeli does not indicate an IRISH origin, but there is a strong affinity between this and those curiosities of literature commonly called "Irish bulls." As for instance, it reminds us of the couplet composed by an Irish officer of a garrison in the Scottish Highlands, in commemoration of the "good works" of General Wade, who had caused excellent military roads to be made through some of the previously almost impassable morasses of that region.

"Had you seen these roads before they were made,
You'd have lifted your hands and blessed General Wade."

Now, by way of comment on D'Israeli, we will say that "it is very curious," and moreover very strange, if not ridiculous, that he and Astle, (from whom he copies without a full and fair acknowledgment,) while "deeply complaining of the inferiority of our inks to those of antiquity," have utterly failed to ascertain the cause or even to notice the occasion of it. They, as well as other writers on the subject, observe the excellence of the ink employed in manuscripts of earlier ages, down to the twelfth century, and the inferiority of the ink used from that period down to the close of the seventeenth century, without turning attention to the great historical fact that the FIRST PAPER-MILL *in Europe was established in that same twelfth century.*

A peculiar CACHEXY *(a variety of the disease known to pschyo-nosologists as the cacoëthes scribendi,) seems to be hereditary in the D'Israeli family.* Benjamin D'Israeli, *(the son of Isaac,) late Chancellor of the Exchequer, &c., when he rose in his place, as the Head or Representative of Her Majesty's government in the House of Commons, to pronounce a eulogy on the recently deceased Duke of Wellington, had the impudence to repeat, word for word, a very bald translation of the elogè delivered by Lamartine a few years previous, on oc-*

casion of the death of one of the third-rate marshals of Napoleon I.

The D'Israeli family are evidently "some" of the children of Israel, who, (as we are told on good authority,) when they left Egypt borrowed everything they could get, and never, so far as the record shows, either returned the articles so obtained, or made proper acknowledgments therefor.

The Chinese did manufacture paper from the bark of the small branches of a tree of the mulberry genus, (Morus Multicaulis?) and also from old rags, silk, hemp, and cotton, as early as the second century of the Christian era; and it is supposed that from them the Arabs derived their knowledge of paper-making, an art which they introduced into Europe in the former half of the twelfth century, when the first paper-mill was put in operation in Spain, then under the Moorish dominion; and, in 1150, this article, as manufactured by them, had become famous throughout Christendom.

[We use the words Arab and Moor indiscriminately here. The former is the name of the race; the latter is limited to that portion found in Northern Africa. The Moor is the Arab of the WEST, (Al Mogreb, El Gharb,) in the Arabic, denominated MOGREBYN,—a word which in Roman

and European mouths has smoothed and softened itself into a form suggestive of the origin of Maurus and Mauritania.]

Now, without coming to a positive conclusion on this subject, we feel authorized to pronounce what appears to be a reasonable opinion, derived from all the facts which we have just placed before the reader,—that the introduction of writing-paper among Europeans, was the occasion and cause of the invention and general employment of modern writing-ink by them.

The fact that the vegetable astringents form a deep or bluish black color, when combined with a salt of iron, had been known from time immemorial. Among the Romans, the atramentum sutorium,—"shoemaker's ink,"—was applied to a solution of sulphate of iron employed by them, as it is even to this day, by workers in leather, to blacken the surface of that material. This it does by uniting chemically with the tannin and gallic acid, by which the hide was converted into leather, whose blackened particles are therefore essentially identical with modern ink. The "copperas-water" is to be found in every shoemaker's shop, where it is used to color the cut edges of the heels and the rest of the soles.

As soon as the difficulty of writing with convenience and rapidity on paper, with the ancient carbonaceous ink, became manifest, the resort to the atramentum sutorium as a substitute for the atramentum scriptorium, was a matter of course, and was but a simple adaptation of a familiar substance to a new purpose, requiring no great ingenuity, and no invention whatever.

For a time, perhaps through a period of several centuries, a mixture of the two kinds of ink was employed by the Romans; and this was undoubtedly the best composition that was ever invented for the purpose of deliberate, careful, elegant writing, designed and required to be permanent and unchangeable under constant exposure and handling,—as in the case of manuscript books before the art of printing was known. Even as early as the first century of the Christian era, in the time of Pliny the Younger, and probably long before that, a solution of sulphate of iron was commonly or frequently added to the carbonaceous and oleaginous mixture which we have described as the original writing-ink. In short, the atramentum sutorium was added, in moderate quantity, to the atramentum scriptorium, thus constituting it a CHEMICAL *as well as a* MECHANICAL *ink. So, modern ink may be improved in black-*

ness, durability and beauty, and rendered unchangeable in color under the action of the chlorides, acids, &c., by the intermixture of a small quantity of the very finest carbon, in the form of an impalpable powder. But, the great difficulty is—that the carbon clogs the pen, and renders the ink too thick to flow easily, so that it can never be used for rapid or ordinary writing. We can not give, in our own words, a better account of this matter than we find in the language of a very learned author in the Edinburgh Review, (volume 48, Dec. 1828).

*The article here cited is entitled "*THE RECOVERY OF LOST WRITINGS,*" and is nominally a review of* [1]GAII INSTITUTIONUM COMMENTARII: [2]INSTITUTES DE GAIUS, RECEMMENT DECOUVERTES DANS UN PALIMPSESTE DE LA BIBLIOTHEQUE DE CHAPITRE DE VERONE. [3]JURISCONSULTI ANTE-JUSTINIANEI RELIQUIAE INEDITAE, *ex codice rescripto Bibliothecae Vaticanae, curante* ANGELO MAIO, *Bibliothecae ejusdem Praefecti. The article begins on page 348 of this volume of the Review.*

We quote from page 366;—"The ink which the ancients generally used, was composed of lamp-black mixed with gum, as we are informed by Dioscorides and others, who give the receipt [recipe?] for making it. Ink of this kind may be

called carbonic: it possesses the advantages of extreme blackness and durability, the writing remaining fresh so long as the substance on which it is written exists; but as it does not sink into the paper, it is liable to the great inconvenience of being easily and entirely removed; for, if a wet sponge be applied to it, the writing may be washed away, and no traces of the characters will remain. The facility with which documents might be thus obliterated, gave occasion to fraud, as an artful forger was able to remove such portions of the original writing as he might desire to get rid of, and thus profit by the absence of material words, or insert in the blanks which he had made, such interpolations as might serve his turn. Many common accidents, by which books and writings were exposed to wet, or even to damp, were also fatal, or at least highly injurious, to compositions and muniments of great value. Various expedients were therefore attempted to remedy an imperfection from which many must have suffered severely. PLINY informs us that it was usual, in his time, to mix vinegar with the ink, to make it strike into the paper or parchment, and that it, in some degree, answered the purpose. It should seem that vitriolic ink, such as we use at present, was also adopted soon afterwards,

which possesses, in perfection, the quality that was desired of sinking instantly into the paper, so as to make it far more difficult to discharge it without destroying the texture on which it is written, and of being perfectly secure against water, by which Indian and other carbonic Inks are so easily effaced. IT IS NOT, *however,* EQUALLY SECURE AGAINST THE EFFECTS OF TIME; *for vitriolic ink gradually fades away, becomes paler by degrees, turns brown and yellow, and is scarcely legible; and sometimes, as the parchment grows yellow and brown with age, it disappears altogether. A compound kind of ink came next into use, which united the advantages and avoided the defects of the two simple sorts. Such a mixed ink was generally used for several centuries; and with this, the manuscripts that are now most fresh and legible appear to have been written. It is evident that the ink with which the original works contained in the Palimpsest manuscripts that have been deciphered were written, was at least in part vitriolic: for the letters which had been rubbed out were rendered legible by the application of the infusion of galls In order to remove the original writing, the parchments on which the mixed ink had been used were, probably, first washed to take off the carbon, and thus partially to efface*

the characters, and were afterwards scraped or rubbed with pumice, or some other suitable substance, to complete the process of destruction, by taking away mechanically the color that the vitriolic portion of the ink still preserved. It is but too probable that many manuscripts, the characters of which were entirely formed of the more ancient carbonic ink, have been entirely destroyed, the letters having been washed off completely, and by the same simple means as the writing of a school-boy on a slate; whilst the parchment still remains in our libraries, and is covered with more modern compositions which have sacrilegiously and too successfully usurped the place of more ancient and more valuable matter. The tirades of Cyril or of Jerome, or the tawdry eloquence of Chrysostom, are perhaps firmly established in quarters from whence [?] the Margites of Homer, or the comedies of Menander, were miserably dislodged.

"A manuscript is called Palimpsest, from the adjective παλιμψαίστος *or* παλιμψήστος, *signifying twice rubbed;* NOT *as the glossary of Du Cange (membrana iterum abrasa—charta deletilis) would seem to denote, because the parchment had twice undergone abrasure, or the writing been twice obliterated, but because it had been twice prepared*

for writing, which was principally effected by rubbing it with pumice, first in the course of manufacture, after the original skin had been cured, and again by the same process, after the original writing had been taken away by washing, or in any other manner. The strict and precise sense of Palimpsest is therefore 'twice prepared for writing;' the repetition of such preparation being the prevailing idea in the etymology, and not erasure, as some have erroneously supposed. It is said to be easy to remove from modern parchment, especially if what is written be of some standing, all traces of writing, by rubbing it with pumice, or similar substances; and if the surface be afterwards polished, no one, by merely looking on it, will ever suppose that it had ever been written upon; but, if it be washed by an infusion of galls, the letters will be so far restored, particularly if it be suffered to remain some time in the light, that it may be copied by a patient and practiced person, who is gifted with good eyes:—so deeply had the iron entered into the soul of the parchment! If the erased letters were written in a bold large hand, the task of deciphering them will of course be less troublesome, and the results more sure. And such are the characters of the more ancient manuscripts;

for, the older the manuscript, the better and more legible is the writing, as approaching more nearly to the ages of civility and refinement. The method of writing in old times is also favorable, it is said, to the restoration of works apparently obliterated. The scribe did not use a flowing ink, nor a finely pointed pen, as modern writers are wont; nor was a small quantity applied so lightly and sparingly as to dry almost as fast as it touches the paper. The ancient ink was thick with gum, and was supplied copiously by a pen with a broad point, usually made of a reed; and the characters were painted rather than written, the ink rather resembling paint or varnish than our thin liquor. As they rarely wrote in books, it was not necessary that the page should dry speedily, or be dried by means of sand and blotting-paper, in order to prevent the loss of time, and that the penman might turn over the leaf immediately; the loose sheets or leaves, on the contrary, which were only to be bound up when the whole was completed, were left to dry slowly, so that the pools of ink which formed the letters, stood long on the surface of the parchment; and that part of the fluid which was of a penetrating nature was gradually absorbed, and sunk deeply into the substance of the skin, so as

to preserve to us—if we be not wanting to ourselves in diligence—many precious relics of ancient lore. The restoration of the original writing in a palimpsest manuscript will be best explained by referring to one of the many kinds of sympathetic ink, which is in truth, making common ink ex post facto, or uniting the ingredients of which it is composed, after the fact of writing. If we write with water in which copperas has been dissolved, the letters will be invisible; but when the paper has been washed over with an infusion of galls, they will appear gradually, and will in time become tolerably legible; the ink being thus formed upon the paper, although much less perfectly, than in the ordinary maceration."

Little or nothing can be added to the full and elaborate history of ancient and modern inks which is contained in this extract,—so thorough and complete in its analysis of the subject, and so clear in its distinct statements of the results of investigations in which some of the most acute minds of Europe have long been successfully employed, that we will not linger upon it with mere verbal criticism.

We can not present a more striking illustration of the change in the composition of inks about the time of the invention

of the art of printing, than is furnished by the annexed fac-simile of a page in the BIBLIA PAUPERUM, ("Bible for poor folks,") the oldest printed book in the world. This extraordinary book is of uncertain date. (No printed book has a date prior to 1457.) There are, as we believe, only two copies of it in America, one in the possession of JAMES LENOX, of New-York, —the other in the ASTOR LIBRARY.

The maker of this book was the unconscious inventor of the art of printing. Wood-engraving was in use for ages before it occurred to the mind of man that a letter might be as easily reproduced in that way as a picture or figure. To convey scriptural history to the minds of the common people, the wood-engravers (whose art was invented to multiply and cheapen the production of PLAYING-CARDS) made little pictures representing scenes described, and events narrated, in the Bible. For the benefit of the few who could read, it was customary to write on the margin, or at the foot, of the page on which the wood-cut was printed, a few words descriptive of the subject or object delineated. This was always done with a pen, by a regular scribe, until, one day, it occurred to the wood-engraver employed on the Biblia Pauperum, that these words might be as easily

engraved as the figures to which they referred, and of which they were the explanation. He put that idea in practice: and in an instant the sublime ART OF PRINTING *was an "accomplished fact."*

The advocates of the claims of Koster, Gansefleisch, (or Gutenberg,) Faust (or Fust,) and Schoeffer, to this invention, have wasted much labor in bringing forth conflicting testimony about them. The long-forgotten and now wholly unknown wood-engraver of the Biblia Pauperum had preceded them by half of a generation. Such books were in existence before A. D. 1420; and the earliest date which the Haarlaem Dutchmen set up for the first printing of their fellow-townsman, Laurence Koster, is 1428. And his pretensions are after all very dubious. Indeed they have been generally condemned as utterly fabulous by bibliographical critics and typographical historians.

We introduce it here to show the color and the (thereby indicated) composition of the INK *employed. It was writing-ink. It contained sulphate of iron (copperas), in combination with vegetable astringent matter, and with very little carbon. The vegetable substance, imperfectly united to the mineral ingredient, has (in obedience to the laws of organic matter) been decom-*

posed and "resolved into its original elements." It has disappeared; but the IRON *remains with its yellow stain, an imperishable memorial of that humble, nameless workman, more enduring than that which the plaintive man of Uz desired; for if those words had been "graven with an* IRON PEN *and lead in the rock forever," that anticipated eternity might have failed of realization by the action of the rain, the frost, the dust, and innumerable imaginable atmospheric vicissitudes, or, (what is worse,) "the wrath of man."— Some Cambyses might have demolished the rock itself, and left no more of the inscription than can now be read of those once carved on the cliffs of Edom, the God-created walls of Petra in the valley of* EL GHOR.

This pale rusty WORD-STAMPING *on the fragile and easily combustible paper, has outlasted the inscriptions once visible in gigantic characters on the four sides of the Memphitic pyramids; and it is only an incidental result of the intelligence diffused and the learning promoted by the invention thus begun, that we can now read the long-buried records of Nineveh, the epitaphs of the Thebaic kings, and the gravings on the precipitous fronts of the mountains which surround the ruins of Persepolis.*

All writers upon this subject have strangely overlooked the fact that the art of impressing or printing letters with a metallic stamp or type on parchment, as a substitute for pen-work, is about a thousand years older than the period above specified as the date of the invention of the modern art of printing. The CODEX ARGENTEUS, *(the oldest translation of the entire Bible into any European language,) is a famous book, in the Library of the University of Upsala in Sweden.*

(We give the particulars of its history in our Appendix.)

This "antique" is on purple vellum, (which is parchment made of calf-skin,) and all the letters are SILVER, *(whence the name Codex Argenteus, the "silver book,") manifestly impressed on the page by a metallic stamp or type, each letter evidently being on a separate stock or handle, and applied by manual pressure. We give a specimen of this style of work. It may be called printing, but can not be denominated manuscript, for that is (literally) "hand-writing," which this certainly is not.*

In our Appendix may be found still earlier instances of this art as practiced by the ancient Romans on a small scale, in signatures, trade-marks, &c.

The Edinburgh Review refers to Pliny and Dioscorides, as furnishing directions for the manufacture of ink. The Edinburgh Reviewer says "receipts,"—not recognizing the broad distinction between a receipt and a recipe. The former of these two words was originally intended to convey the idea that the person who signs the paper has got something: the latter word, or its representative initial (℞) *means simply, "take."*

The directions of Pliny are in the following words:—

C. Plinii Secundi Historia Naturalis.

Lib. XXXV, §25.

ATRAMENTUM.

Atramentum quoque inter factitios erit, quanquam est et terra geminæ originis. Aut enim salsuginis modo emanat, aut terra ipsa sulphurei coloris ad hoc probatur. Inventi sunt pictores, qui e sepulcris carbones infectos effoderent. Importuna haec omnia, et novitia. Fit enim e fuligine pluribus modis, resina vel pice exustis. Propter quod, officinas etiam aedificavere, fumum eum non emittentes. Laudatissimum eodem modo fit e tedis. Adulteratur fornacum balnearumque fuligine, quo ad volumina scribenda utuntur. Sunt qui et vini faecem exsiccatam excoquant; adfirmantque, si ex bono vino faex fuerit, Indici speciem id atramentum praebere. Polygnotus et Micon celeberrimi pictores Athenis, e vinaceis facere: tryginon appellant. Apelles commentus est ex ebore combusto facere, quod elephantinum vocavit. Adportatur et Indicum, inexploratae adhuc inventionis mihi. Fit etiam apud

infectores ex flore nigro, qui adhaerescit aheneis cortinis. Fit et e tedis ligno combusto, tritisque in mortario carbonibus. Mira in hoc sepiarum natura: sed ex his non fit. Omne autem atramentum sole perficitur, librarium gummi, tectorum glutino admixto. Quod autem aceto liquefactum est, aegre eluitur.

(TRANSLATION.)

"INK (or literally) BLACKING.—Ink also may be set down among the artificial (or compound) drugs, although it is a mineral derived from two sources. For, it is sometimes developed in the form of a saline efflorescence,—or is a real mineral of sulphureous color—chosen for this purpose. There have been painters who dug up from graves colored coals (CARBON). But all these are useless and new-fangled notions. For it is made from soot in various forms, as (for instance) of burnt rosin or pitch. For this purpose, they have built manufactories not emitting that smoke. The ink of the very best quality is made from the smoke of torches. An inferior article is made from the soot of furnaces and bath-house chimneys. There are some (manufacturers) also, who employ the dried lees of wine; and they DO say that if the lees so employed were from good wine, the quality of the ink is thereby much improved. Polygnotus and Micon, celebrated painters at Athens, made their black paint from burnt grape-vines; they gave it the

name of TRYGYNON. *Apelles, we are told, made* HIS *from burnt ivory, and called it elephantina "ivory-black." Indigo has been recently imported,—a substance whose composition I have not yet investigated. The dyers make their's from the dark crust that gradually accumulates on brass-kettles. Ink is made also from torches (pine-knots), and from charcoal pounded fine in mortars. "The cuttle-fish" has a remarkable quality in this respect; but the coloring-matter which it produces is not used in the manufacture of ink. All ink is improved by exposure to the sun's rays. Book-writers' ink has gum mixed with it, —weavers' ink is made up with glue. Ink whose materials have been liquified by the agency of an acid is erased with great difficulty."*

This sounds very much like nonsense: but it is exactly what the "Great Naturalist," Pliny, meant when he wrote all that he knew, and probably all that was then known on the subject of ink, black paints and dyes, and very dark-colored fluids generally, which were then employed by painters, dyers, weavers, writers and physicians. To make his chapter on this subject fully intelligible to us, we must bear in mind the fact, that the great science of Che-

mistry had no existence till many centuries after Pliny wrote. And thus, it never occurred to him that there was but one substance, (now known to be elementary,) CARBON, which gave the quality of blackness to all the materials which he names, with the exception of one salt of copper, and probably one of iron, (the sulphate,) and INDIGO, a purely vegetable substance, the dried coloring matter of a plant in India, (Indicofera anil,) and named by the Romans from the country that produced it, and first made it known to them.

PEDANIUS DIOSCORIDES, born in Anazarbus, (a city of Cilicia, about fifty miles from TARSUS, the birth-place of the Apostle Paul,) wrote a book on the Materia Medica, or the qualities of drugs, a little after the time when Pliny composed his Natural History. Neither of them seems to have been acquainted with the writings of the other. Apparently, they lived, wrote and died nearly or actually cotemporary, in the same empire, utterly ignorant of each other's existence,—though they are now universally recognized as the two most eminent writers of all antiquity on the subjects of Natural History and the Materia Medica. They both lived in the reign of Nero, and the date of the active or middle part of both their lives may be

reasonably placed at or about the year 100 of the Christian Era.

From Dioscorides to LINNÆUS, (in the last century,) the Materia Medica made no actual progress and received no scientific improvement; yet, eminent as is Dioscorides, he was so little known to his own generation or that next following, that it is now impossible to ascertain the exact date of his birth or of his death, or any facts in his life, but that he wrote two books, of which that here quoted is the best known, and has made him known 1700 years after his birth.

(We may mention that this Dioscorides was, in no traceable degree, related to the person of the same name, whose manuscript we have copied in our illustrations as the oldest extant specimen of Greek ink-writing.)

We give a translation of his brief but complete description of the ink used in his time, and the Latin version, that those who wish may satisfy themselves of the correctness of our rendering. It will be seen that it occurs at the close of the great work of Dioscorides:—

Atramentum, quo scribimus, e fuligine taedarum collecta conficitur. In singulas gummi uncias ternae fuliginis unciae adjiciuntur. Fit etiam e resinae fuligine et pictoria illa modo dicta. Hujus fuliginis au-

tem sumi oportet minam unam, gummi sesquilibram, taurini glutinis et chalcanthi singulorum sesquiunciam Idoneum est ad septica; et confert ambustis ex aqua paullo crassius inunctum et tamdiu dimissum, donec cicatrix obducatur, sanatis nimirum ulceribus sponte sua excidit.

Atque jam, carissime Aree, tum pro operis modo, quem proposueramus, tum pro materiae auxiliorumque copia, quam colligere licuit, hucusque dicta sufficiant.

Libri quinti et ultimi de Materia Medica finis.

Pedanii Dioscoridis Anazarbei De Materia Medica.

[TRANSLATION.]

[*The*] "INK *with which we write is composed of the soot of torches, collected.*

"*To each ounce of gum, add three of soot.*

"*It is also made of the soot of resin and of that lately called 'painters' black.' Of this soot, however,—take one* MINA,*—of gum, half a pound,—of ox-glue and of copperas, each, half an ounce.*

"*It is a good application in cases of gangrene, and is useful in scalds, if a little thickened and employed as a salve, and permitted to remain until a new cuticle is formed, when it will spontaneously fall off from the healed sore.*

"*And now, my very dear Areus, in due proportion to the work which we had undertaken, and the quantity of the materials and contributions which we could gather, what we have thus far said must suffice.*

"End of the fifth and last book on The Materia Medica.

[The book] of Pedanius Dioscorides on the Materia Medica."

We have followed the text of Karl Gotleib Kuhn. Medicorum Graecorum, opera quae extant. Leipzig, 1829.

Among the fantastic trifles with which DEAN SWIFT *was accustomed to amuse his leisure, is a little string of verses on this subject which are appended, not as being of any poetic merit, but as a "curiosity of literature"—not out of place here:—*

On Ink.

I am jet black, as you may see,
The son of pitch and gloomy night;
Yet all who know me will agree
I'm dead, except I live in light.

Sometimes in panegyric high,
Like lofty Pindar, I can soar,
And raise a virgin to the sky,
*Or sink her to a * * * * **

My blood this day is very sweet,
To-morrow of a bitter juice;
Like milk, 'tis cried about the street
And so applied to different use.

Most wondrous is my magic power:
For with one color I can paint.
I'll make the devil a saint this hour,
Next make a devil of a saint.

Through distant regions I can fly,
Provide me with but paper wings,
And fairly show a reason why
There should be quarrels among kings.

And, after all, you'll think it odd,
When learned doctors will dispute,
That I should point the word of God,
And show where they can best confute.

Let lawyers bawl and strain their throats,
'Tis I that must the lands convey,
And strip their clients to their coats,—
Nay, give their very souls away.

We find also in Pope's epistle of Heloise to Abeillard an allusion to the power of letters as conveying ideas, which seems appropriate in this connexion as illustrating the uses of ink.

Heaven first taught letters for some wretch's aid,
Some banished lover, or some captive maid:
They live, they speak, they breathe what love inspires,
Warm from the soul, and faithful to its fires;
The virgin's wish without her fears impart,
Excuse the blush, and pour out all the heart,
Speed the soft intercourse from soul to soul,
And waft a sigh from Indus to the pole.

The genius of BYRON *(in a playful flash) has illuminated our subject with one of his most brilliant passages:—*

But words are things: and a small drop of INK,
Falling like dew upon a thought, produces
That which makes thousands (perhaps millions) think.

A less distinguished poet has, in expressive, and though in quainter, humbler, yet in noble strain, said what is equally appropriate in this place:—

Books are a part of man's prerogative:
In formal INK, they thought and voices hold,
That we to them our solitude may give,
And make time present travel as of old.

Celsus, who lived in this world, about the commencement of the Christian era, has left a little memorandum on this subject which is worth quoting.

We give his words entire:—

There are two kinds of bald spots occurring on the human head,—one of them a baldness which creeps over the scalp like a serpent,—the other showing itself in the form of round spaces uncovered by hair. Some recommend the use of acrid irritant articles, combined with oils, &c. But there is nothing better for you than to have the bald place shaved every day with a [very dull] razor, and, after having done that, you needn't do anything else but rub on the place thus shaved a little atramentum sutorium—("shoemakers' ink," "copperas-water,")—[solution of the Di-proto sulphate of the (per) sesquoxyd of iron].

The editor of the printed copy of the edition of the works of Aulus Cornelius Celsus which was printed in Padua, made a material error on this point.

The word "sutorium" (being unintelligible to the ignorant monk who superintended the printing) was changed to "scriptorium,"—that is, "writing-ink," instead of "shoemakers'-ink." It is well-known that a solution of copperas properly made, will remedy or prevent premature baldness;

but we assert that no quantity of lamp-black and gum, or grease, will be found effectual for that purpose.

In the time of Celsus, the sulphate of iron (copperas) had not yet become an essential ingredient of writing-ink; and even after that its combination with carbonaceous and oleaginous matters entirely neutralized the power which renders it applicable and useful in such cases.

CONCLUSION.

We have thus herein attempted the fulfilment of the promise (with which we began) to produce a "HISTORY OF INK,"—a thing never before done or even proposed to be done. If not successful in our attempt, we hope that we have at least, in this little book, furnished hints and suggestions on this subject which the learned may employ hereafter when the history of this important material of history shall be undertaken and executed on a larger scale. In view of which possibility, we may, with a pardonable self-gratulation, say,—in the words of Martin Luther,—"We have

given to other and higher spirits occasion to reflect."

But we are loth to leave this subject (which has grown into our affections as we have dwelt upon it) without giving a blow or a kick to one monstrous absurdity which has prevailed among the learned, "falsely so-called,"—from the time when the Jesuits returned from China with their "edifying and curious" tales about the huge antiquity of all the arts and some of the sciences of civilization among the people of what they called the "Celestial Empire,"—a term wholly unknown to the Chinese, in any form or variation of expression.

The simple facts are that—the Chinese derived their knowledge of INK (of writing with a colored liquid) from Europe. So did they obtain their knowledge of the art of printing, carried to them by Venetian travelers, "overland," just at the moment before the clumsy engraved wood-blocks were superseded by the moveable types of Gansefleisch or Gutenberg. So was it with the Mariner's Compass, the manufacture of gunpowder, and all their boasted "inventions,"—among which may be included their calculation of eclipses backward through fabulous cycles of centuries, and the morals of Confucius or Kong-foo-

tsee, a mythical personage unmentioned in the history of China until the contents of the New Testament had been made known there,—and that—many ages after the date of his supposed life and death.

But for their derivation and appropriation or theft of the great arts from the West, the Chinese and all Oriental nations, from the Euphrates to the Pacific, including the Japanese, would have remained to this day in the condition in which the Mexicans and Peruvians were found by the Spanish and Italian robbers who first explored the Western Hemisphere, and murdered its inhabitants for their land, and the fruits and the gold and silver of that land.

Whatever arts the Chinese or Japanese or Jesuits may have invented or preserved, the art of TELLING THE TRUTH *is evidently, to all of them, one of "*THE LOST ARTS,"—*lost irretrievably and forever!*

Blackwood's Black Ink.

Davids & Co's Limpid Writing Fluid.—

Harrison's Columbian Ink.

Steel-Pen Ink, Theodeus Davids.

Maynard & Noye's Black Writing Ink.—

Written, Augt. 14. 1855, to test permanence by long exposure to Sun & Rain—

James R. Chilton, Md.
Chemist.

The above is a close fac-simile of a paper upon which I wrote with several Kinds of Ink, as it appeared after being exposed to the weather for five months.

James R. Chilton, Md.
Chemist.

New York, March 15, 1856.

Snyder, Black & Sturn, 92 William St.

DESCRIPTION OF THE PLATES.

No. 1.—A fac simile of the oldest Hieratic writing extant—about the 15th century B. C. The hawk (the emblem of Divinity) and the man stand on something that "teters"—the circle between them (a serpent biting its own tail) is the ancient symbol of eternity. The Deity overbalances the man.

No. 2.—From a Greek MS. buried at Herculaneum in the year 29 B.C.

No. 3.—Written on papyrus in Egypt, in the 3d century B. C.

No. 4.—Written on papyrus 260 years B. C.

No. 5.—Specimen of a Palimpsest copy of Cicero's "Republic" in the Vatican Library.

No. 6.—Phœnician writing on papyrus.

No. 7.—From a Pentateuch in the Bibe. Nate. Paris, A. D. 450.

No. 8.—From a Greek Copy of the Book of Genesis, written in gold on purple vellum, A D. 400.

No. 9.—From a MS. on papyrus written in Egypt 3d century B.C.

No. 10.—From a Charter of Childebert III. A. D. 703.

No. 11.—From a Charter of Charlemagne, about A. D. 785.

No. 12.—From a Charter of the Emperor Conrad I. A. D. 988.

No. 13.—Specimen of "Roman Saxon," A.D. 600.

No. 14.—From a Charter of Dagobert I. about A.D. 620.

No. 15.—From an early Gælic MS.

No. 16.—From a Deed of William the Conqueror.

No 17.—The monogram signature to a Charter of Charlemagne, about A.D. 785.

No. 18.—From a Charter of the reign of Hugh Capet, A.D. 988.

No. 19.—From a Deed of Henry I.

No. 20.—From a Deed of Stephen, dated A.D. 1139

No. 21.—From a Deed of the reign of Richard I.

No. 22.—From a MS. of Wyckliffe's translation of the Bible.

No. 23.—"Set Saxon," A.D. 850.

"Qui sub Pontio Pilato crucifixus est, et sepultus, tertia die resurrexit."

No. 24.—From a Charter of Sebbi, King of the East Saxons, A.D. 664,

"Ego Sebbi Rex East Sax (onum) pro—confirmatione Subscripsi."

No 25.—Part of a Charter of Alfred the Great, A.D. 800.

No. 26 —From a Charter of Edward the Confessor, A.D 1045.

No. 27.—From a Deed of the reign of Edward I.

No. 28.—From a Deed of William the Conqueror.

No. 29.—From a Deed of the reign of Edward III.

Edwardus Dei gratia Rex Anglias Dominus Hiberniæ, Dux Aquitaniæ, &c.

No. 30.—From the Will of William Mikelfeld, Nov. 7, 1439.

No. 31.—From a Deed of the reign of Edward IV.

No. 32.—From a Grant by William Wallace.

No 33.—From a Deed of Richard III.

No. 34.—From a Deed of the reign of John.

No. 35.—Autograph of Lord Macauley.

No. 36.—From a Deed of Henry VII.

No. 37.—From an English translation of the works of Chauliac, A. D. 1400.

No 38.—From a Deed of Henry VIII.

No. 39.—From a MS. in the rounded hand of Italy, 15th century.

No. 40.—Letter from Columbus to the Viceroy of Castile, 15th Century.

No. 41.—Letter of Anne of Brittany, 1514.

No. 42.—Signature of "Bayard," the Chevalier.

No. 43.—Letter from Charles V. to Francis I.

No. 44.—Letter from Calvin, 1559.

No. 45.—Letter of the Earl of Essex, 1567.

No. 46.—Letter of Copernicus, 1473.

No. 47.—William H. Prescott.

No. 48.—Letter of Charles the XII of Sweden.

No. 49.—Rosseau, 1757.

No. 50.—Letter of Erasmus, 1476.

No. 51.—Letter of Queen Elizabeth to Henry IV of France.

No. 52.—Christina of Sweden, 1626.

No. 53.—Charles I. to his sister.

No. 54.—Oliver Cromwell, 1643.

No. 55.—Duke of Marlborough, June, 1706.

No. 56.—The Empress Catherine II. of Russia, July, 1773.

No. 57.—Washington, 6th Sept. 1788.

No. 58.—Louis XVI, June 30, 1773.

No. 59.—Robespierre.

No. 60.—Napoleon to Soult.

No. 61.—Wellington, June 19, 1815.
No. 62.—Lord Byron, Nov. 4, 1821.
No. 63.—Voltaire, July 29, 1757.
No. 64.—Edmund Burke.
No. 65.—William Pitt, March 27, 1803.
No. 66.—Wellington, April 21, 1834.

The colored engraving is an illustration of the picture writing of the Mexicans, from Lord Kingsborough's great work. The blue border represents a series of years, distinguished by the dots. The compartment with five dots representing the fifth year of the reign, that with ten the tenth, and so on. The pictures of the acts of the Prince being connected with each special year by means of a connecting line. The additional symbols have different significations—that of the flower signifying a calamitous year, &c. In this plate King Acamapich is represented in the first and sixth year of his reign; at the top of the page are warlike instruments, signifying his preparation for war; the figures below, on the right, are the four cities—Quahnahuac, Mezquic, Cuitlhuac and Xochimilco—represented by descriptive symbols. The four heads on the left are those of the respective kings or chiefs of these cities, beheaded by Acamapich, each distinguished by the iconcgraphic symbol by which his name was expressed in this system of writing.

These picture records, which would have illustrated the unknown history of this continent, were destroyed in "mountain heaps" by the first Spanish archbishop of Mexico—an act of fanatical vandalism equalled only by the burning of the Alexandrian Library, and the vast hoard of Moorish literature at Granada by Ximenes.

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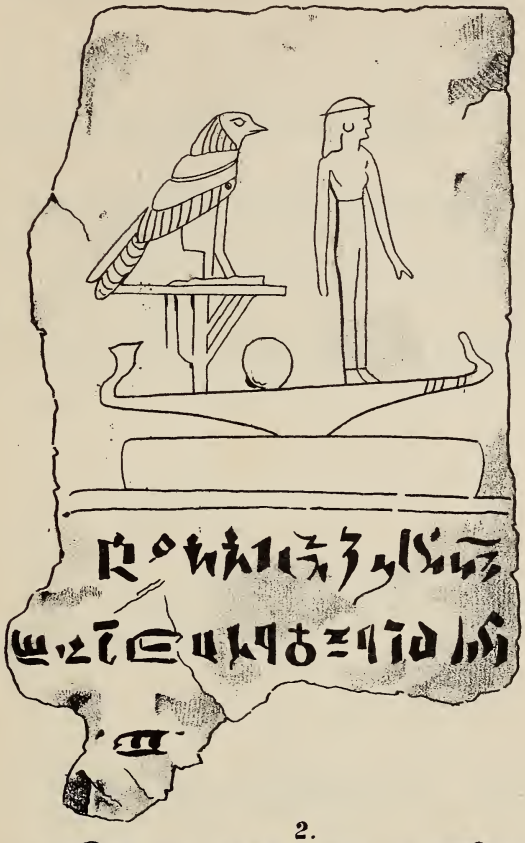

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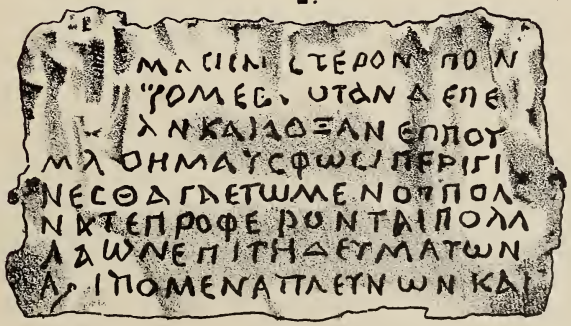

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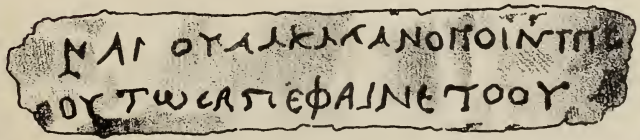

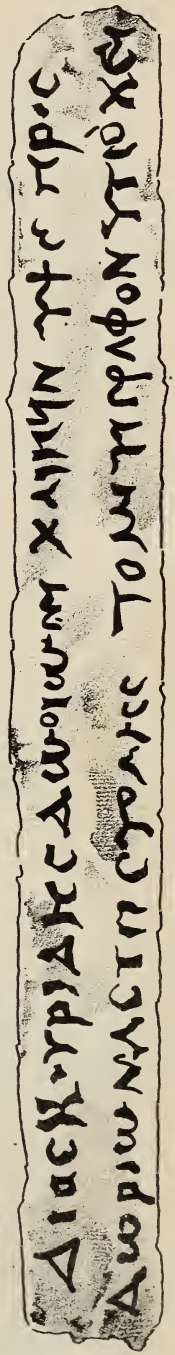

Snyder Black & Sturm 92 William St.

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κε ΞΜΛΙΚΤ Ā θεοτοκε

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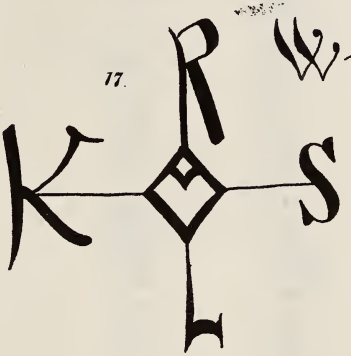

18.

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22.

Snyder Black & Sturm 92 William St

23. qui sub ponto pilato crucifixus
& sepultus tertia die resurrexit

24. †EGO SEBBI REX EAST SAX PRO

25. decclxxv°. — Godwrd sputtinge hunc

27.

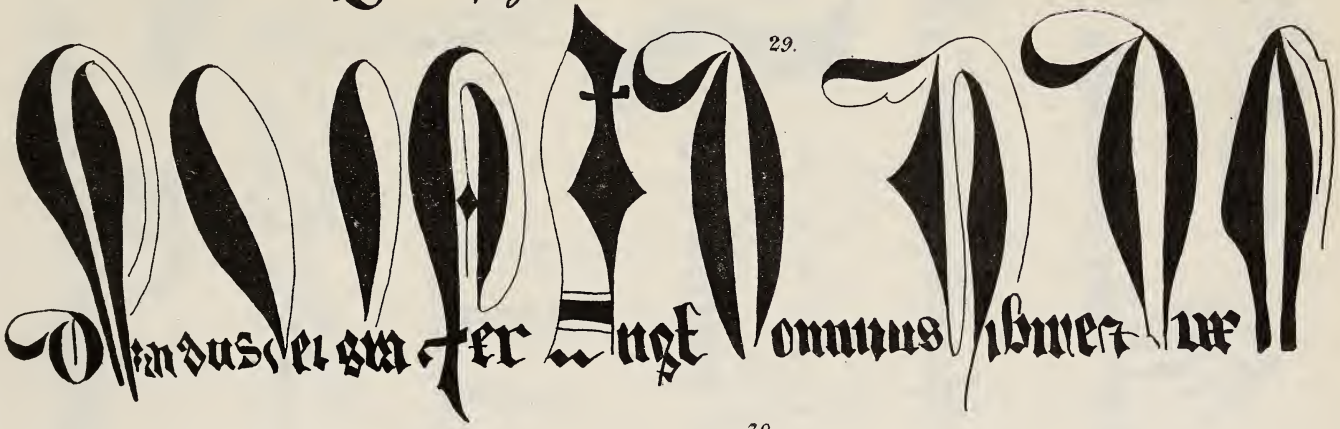
26. nomina hic cauxtahunt — Lapyterarius

Snyder Black & Sturn, 92 William St.

28.

'Will' di grá rex — Scatis me concessisse

29.



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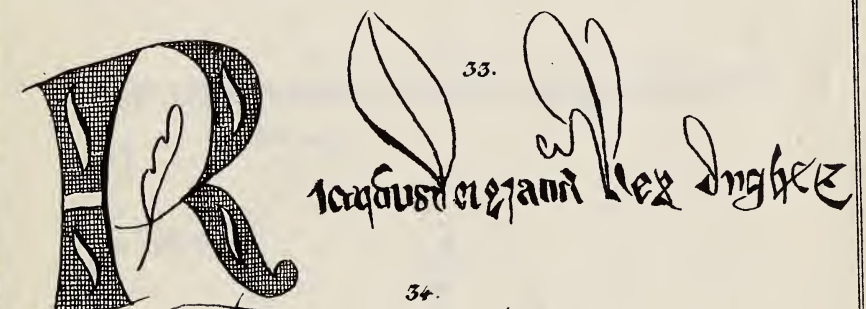

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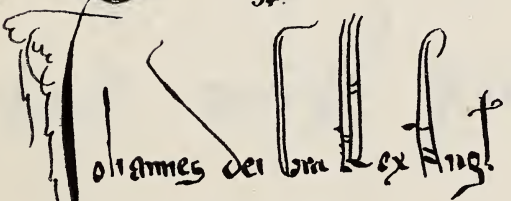

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Snyder, Black & Sturn 92 William St.

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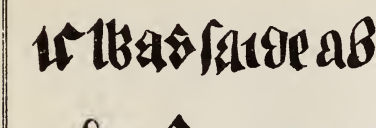

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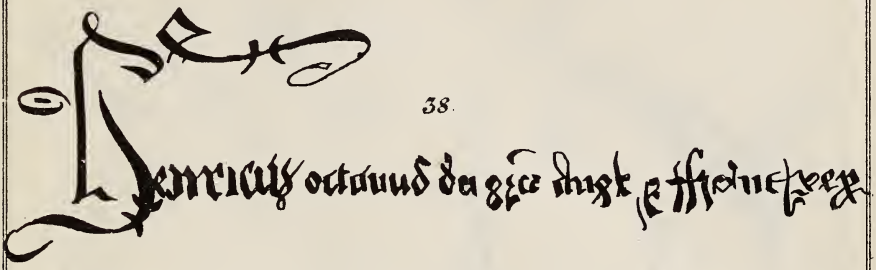

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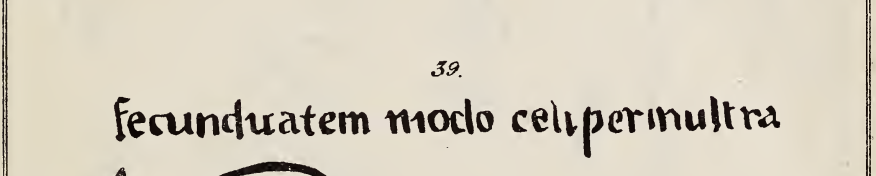
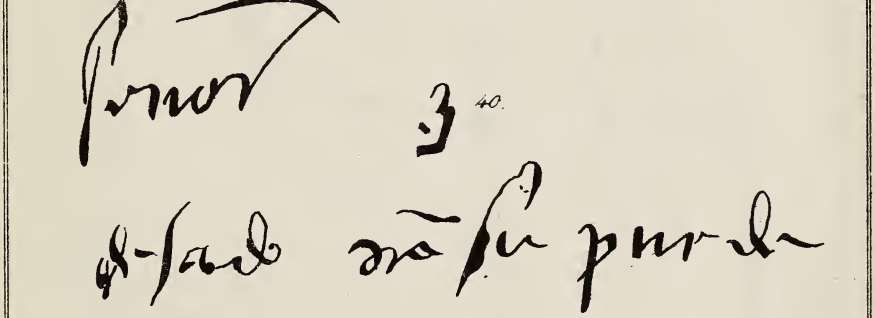


40.



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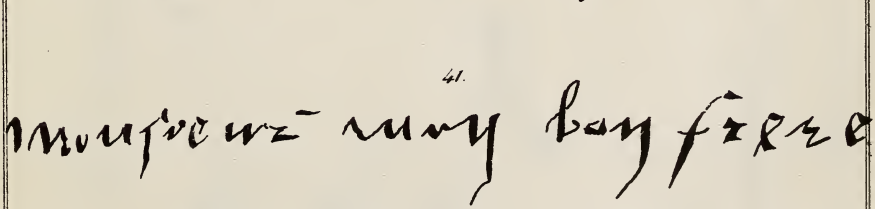

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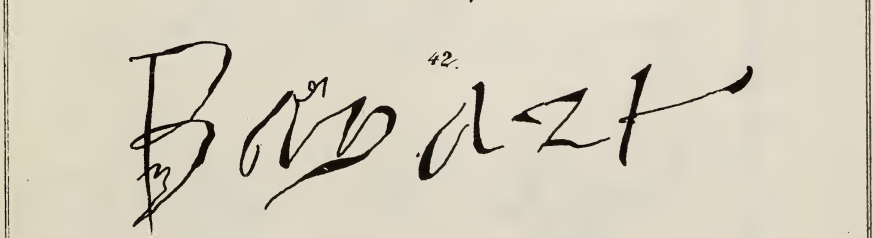


Snyder Black & Sturm 32 William St.

Snyder Black & Sturn 92 William St

49.
ne sentes pas dans l'ame aussi

50
une ago ne pouvoir o manquer

51.
Ficht Rest, (zu) Amuter

52.
Mauvaise

53
Jamais reprise chas

54.
mule and exposure the symptoms

Sandor Bros. & Stuart 82 William St

55.
Happy times in this

56.
Glorious Memorable

57.
well affected to the

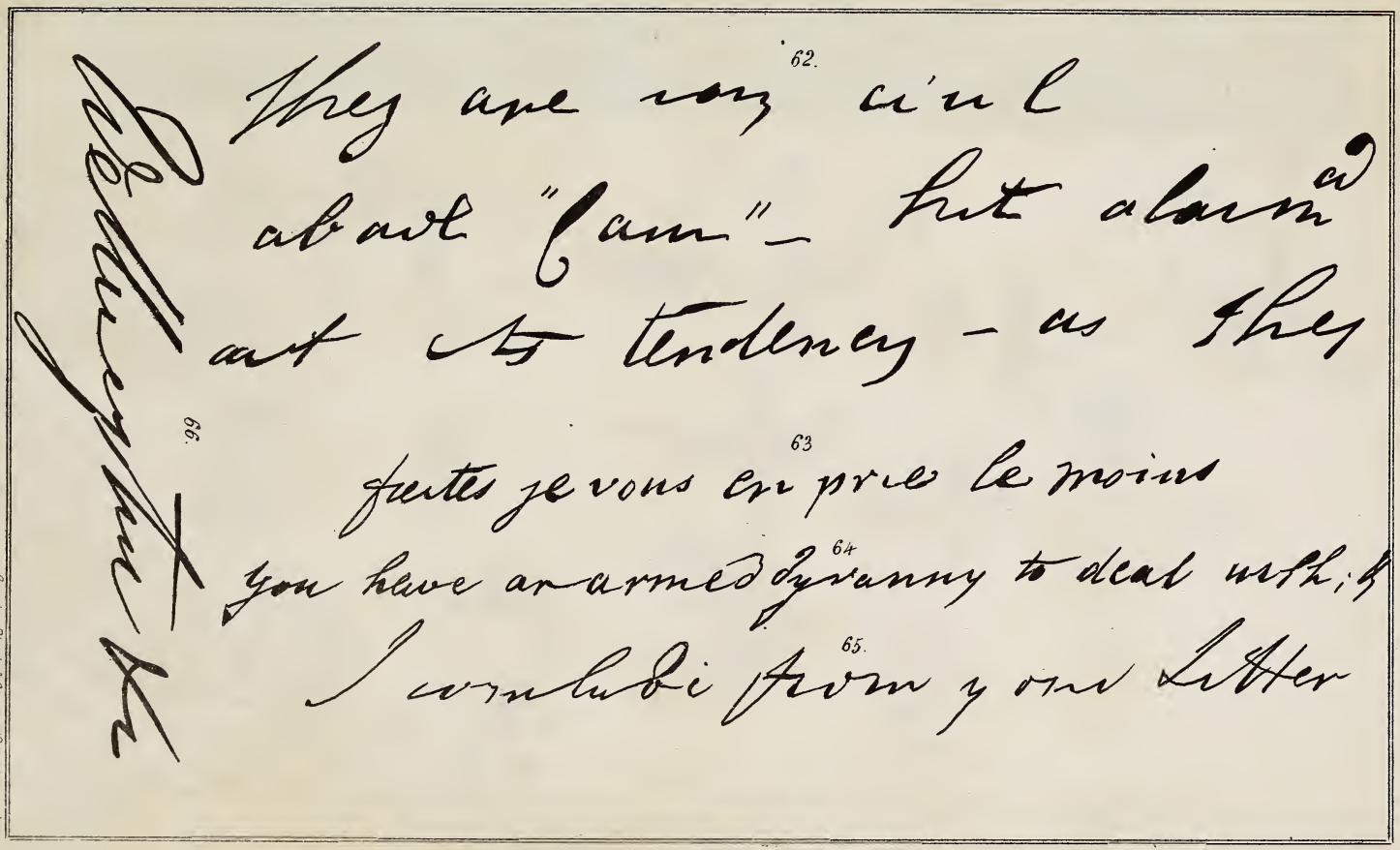
58.
voisinage pour le bien public

59.
La vérité a jamais toutes les mesures

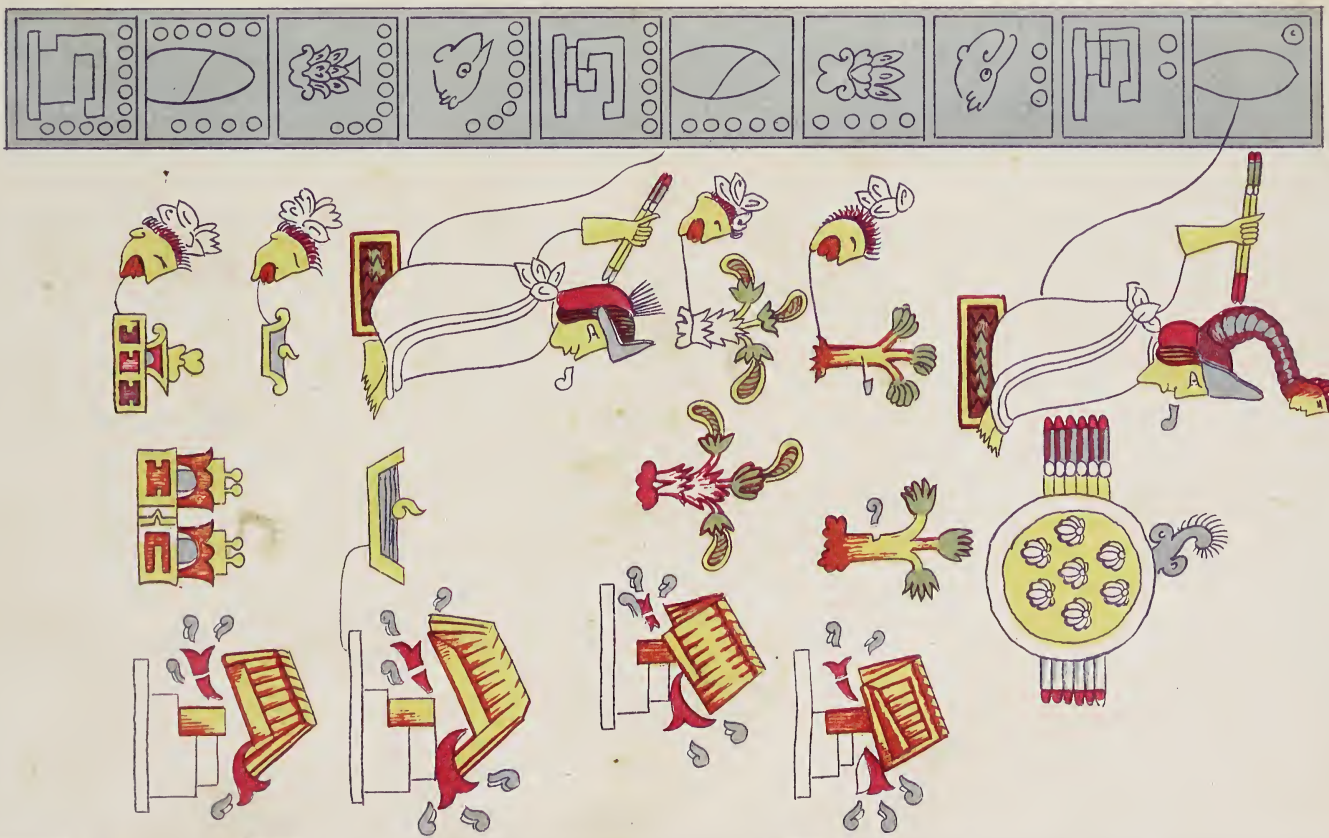
60.
Heavy his own breast gained the
laurels I could have wished any
other hand but Blucher and mine

61.
Wellington
Waterloo, June 19 1815

Snyder Black & Sturn, 92 William St.


They are very civil
about "Cam"— but alarmed
at its tendency — as they
Ladies Gentlemen &c
frettes je vous en prie le moins
You have an armed tyranny to deal with, if
I conclude from your Letter

Snyder Black & Swan, Photo-Litho, N.Y.



FORM OF THE WORD INK

IN DIFFERENT LANGUAGES

Hebrew:_ דיו

Chaldaic:_ דיותא **DYŌ'**

Sanskrit:_ मसि

Greek:_ Μέλαν *(Melan)*

Latin:_ **ATRAMEUTUM** *(Scriptorum)*

Mediaeval Latin:_ **ENCANSTUM**

China:_ 墨水 **MIH SHWUY** *(liquid Ink)*

" 墨 **MIH** *(Chinese Ink)*

Canton dialect:_ **MAK SHUY**

Hindostan:_ کالی **KALI**

Bengal:_ কালী **KALI**

Shingalese:_ ඉටි

Burmese:_ ဓေး

Malayhim:_ മഷി

Maratha:_ शाइ

Persia:_ سیاهی **SIYAHI**

Sinic:_ 墨

Turkey:_ مرکب **MUREKKEB**

Armenia:_ ելաւոյ

Snyder Block & Sturm 52 William St

FORM OF THE WORD INK

IN DIFFERENT LANGUAGES

Thibet:_

Anamitic:_ MỰC VIÊT

Malay:دوات DAWĀT

Japan:_

Java:_ MANULYSAN

Egyptian:_

Coptic:_ ⲬⲪⲎⲞⲨⲦ

Amharic:_ ቀለም

Algerian:_ SIMEKH

Aethiopic:_ ሐመት

Arabic:_ HBR, HIBR, HIBAR,

French:_ ENCRE { *Old French*_ ENQUE; *Breton*_ LYOU; *Provincal*_ ANCRA }

German:_ Tinte (*Tinte*) { *Low Dutch*; *Flamande*; *Hollandais* } INK

Spanish:_ TINTA

Portugese:_ TINTA

Italian:_ INCHIOSTRO

Piedmontese:_ INCIOSTR_

Russian:_ чернила { *Lettish*_ BLAKKA; *Lettanish*_ TINTA }

Polish:_ INKAUST

Stuart Black Stamp 32 Nassau St

FORM OF THE WORD INK
IN DIFFERENT LANGUAGES

Hungarian: _ TENTA

Bunda or Argolense: _ TINTA

Bohemia: _ INGAUST

Basque: _ CORANSIA

Illyrian: _ INGOAS

Danish: _ BLÆC

Swedish: _ BLÄCK

Laplandish: _ BLEKK

Greenlandish: _ BLEK

Icelandish: _ BLEK

English: _ INK { *Old English* _ ENKE, INKE, YNKE / *Anglo Saxon* _ BLÆC

Welsh: _ DU, ENGE

Gaelic: _ DUBHADH

Irish: _ Duß. DUBH

Peruvian: _ YANATULLPU

Chilian: _ CHILLCAMOM

Mexican: _ THLLI

Guarani: _ TIV _ TIRV _ (*Tinta*)

Caribee Islands: _ OÚLITI OR OÚLITACLE

Sryder Chro. 3 Jan. 92 William St